

**Region 7 Superfund Program
Site Addendum for the Generic QAPP for Superfund Site Assessment Activities (October 2012)**

Project Information:

Site Name: <i>West Lake Landfill, MOD079900932</i>		City: <i>Bridgeton</i>	State: <i>MO</i>
EPA Project Manager: <i>Brad Vann</i>		START Project Manager: <i>Colin Willits</i>	
Approved By:	<i>NA</i>		
Title:	START Project Manager	Date:	Prepared For: <i>EPA Region 7 Superfund Division</i>
Approved By:	<i>NA</i>		
Title:	START Project Manager	Date:	
Approved By:	<i>NA</i>		
Title:	START QA Manager	Date:	Prepared By: <i>Brad Vann</i> Date: <i>October 5, 2015</i>
Approved By:	<i>Brad Vann</i>		
Title:	EPA Project Manager	Date:	
Approved By:	<i>NA</i>		
Title:	EPA Regional Quality Assurance Manager	Date:	START Contractor: <i>NA</i> START Project Number: <i>NA</i>
Approved By:			

1.0 Project Management:

1.1 Distribution List

EPA--Region 7: *Brad Vann, Tom Mahler* START: *Colin Willits*
 EPA Project Manager; EPA field sampler *Start Project Manager*
 Diane Harris
 EPA RQAM

1.2 Project/Task Organization

Brad Vann will serve as the Project Manager; OSC Tom Mahler will conduct the sampling activity.

1.3 Problem Definition/Background:

Description:

EPA will be retrieving split samples from 20% of the soil core samples and 100% of the sediment samples obtained by Engineering Management Support, Inc. (EMSI) sub-contracted services, during Phase II site investigations. This sampling is for the purpose of improving the estimate of the volume of RIM in OU-1, Area 1 and 2, of West Lake Landfill.

1.4 Project/Task Description:

CERCLA APA Report	CERCLA SI	Brownfields Assessment
■ Other: Remedial Investigation support	Pre-CERCLIS Site Screening	Removal Assessment

Schedule: Field work is scheduled for *October to December, 2015*

1.5 Quality Objectives and Criteria for Measurement Data:			
a. Accuracy: b. Precision: c. Representativeness: d. Completeness: e. Comparability: Other Description:	■ Identified in attached table. ■ Identified in attached table. ■ Identified in attached table. ■ Identified in attached table. ■ Identified in attached table.		
*A completeness goal of 100 percent has been established for this project. However, if the completeness goal is not met, EPA may still be able to make site Decisions based on any or all of the remaining validated data.			
1.6 Special Training/Certification Requirements:			
■ OSHA 1910 Special Equipment/Instrument Operator (describe below): na. Other (describe below): na.			
1.7 Documentation and Records:			
<div style="display: flex; justify-content: space-between;"> <div> ■ Field Sheets ■ Chain of Custody </div> <div> Site Log ■ Health and Safety Plan </div> <div> APA Report ■ Letter Report </div> <div> ■ Site Maps ■ Photos </div> <div> Video </div> </div> ■ Sample documentation will follow EPA Region 7 SOP 2420.5. ■ Other: Analytical information will be handled according to procedures identified in Table 2.			
2.0 Measurement and Data Acquisition:			
2.1 Sampling Process Design:			
<div style="display: flex; justify-content: space-between;"> <div> Random Sampling Search Sampling Screening w/o Definitive Confirmation sample </div> <div> Transect Sampling Systematic Grid Screening w/ Definitive Confirmation </div> <div> ■ Biased/Judgmental Sampling Systematic Random Sampling Screening w/ Definitive Confirmation </div> <div> Stratified Random Sampling ■ Definitive Sampling </div> </div>			
Sample Summary Location	Matrix	# of Samples*	Analysis
<i>OU-1, Area 1 and 2</i>	<i>Soil</i>	<i>10</i>	<i>Isotopic U, Th, Ra</i>
<i>Drainage areas collocated outside of OU-1, Area 1 and 2. Identified in EMSI work plan.</i>	<i>Sediment</i>	<i>3</i>	<i>Isotopic U, Th, Ra</i>
*NOTE: QC samples are not included with these totals. See Table 1 for a complete sample summary.			
2.2 Sample Methods Requirements:			
Matrix	Sampling Method	EPA SOP(s)/Methods	
<i>Soil</i>	<i>EPA/START will receive split soil samples collected by EMSI in accordance with their approved work plan and QAPP</i>	<i>Samples will be collected by EMSI in accordance with the approved workplan and QAPP</i>	
<i>Sediment</i>	<i>EPA/START will receive split sediment samples collected by EMSI in accordance with their approved work plan and QAPP</i>	<i>Samples will be collected by EMSI in accordance with the approved workplan and QAPP</i>	

2.3	Sample Handling and Custody Requirements:
	<p>Samples will be packaged and preserved in accordance with procedures defined in Region 7 EPA SOP 2420.6.</p> <ul style="list-style-type: none"> ■ COC will be maintained as directed by Region 7 EPA SOP 2420.4. Samples will be accepted according to Region 7 EPA SOP 2420.1. ■ Other (Describe): Samples will be packaged and accepted according to procedures establish by the START-contracted laboratory
2.4	Analytical Methods Requirements:
	<ul style="list-style-type: none"> ■ Identified in attached table. Identified in attached Analytical Services Request (ASR) Form Other (Describe):
2.5	Quality Control Requirements:
	<p>Not Applicable Identified in attached table. In accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>. Describe QC Samples to be collected:</p> <ul style="list-style-type: none"> ■ Other (Describe): The split samples to be obtained from EMSI are in addition to other quality control samples that will be collected by EMSI per their approved workplan and QAPP.
2.6.	Instrument/Equipment Testing, Inspection, and Maintenance Requirements :
	<p>Not Applicable</p> <ul style="list-style-type: none"> ■ In accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>. Other (Describe):
2.7	Instrument Calibration and Frequency:
	<p>Not Applicable</p> <ul style="list-style-type: none"> ■ Inspection/acceptance requirements are in accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>. Calibration of laboratory equipment will be performed as described in the previously referenced SOPs and/or manufacturers' recommendations. Other (Describe):
2.8	Inspection/Acceptance Requirements for Supplies and Consumables:
	<p>Not Applicable</p> <ul style="list-style-type: none"> ■ In accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>. All sample containers will meet EPA criteria for cleaning procedures for low-level chemical analysis. Sample containers will have Level II certifications provided by the manufacturer in accordance with pre-cleaning criteria established by EPA in <i>Specifications and Guidelines for Obtaining Contaminant-Free Containers</i>. Other (Describe):
2.9	Data Acquisition Requirements:
	<p>Not Applicable</p> <ul style="list-style-type: none"> ■ In accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>. Previous data/information pertaining to the site (including other analytical data, reports, photos, maps, etc., which are referenced in this QAPP) have been compiled by EPA and/or contractor(s) from other sources. Some of that data has not been verified by EPA and/or its contractor(s); however, the information will not be used for decision-making purposes by EPA without verification by an independent professional qualified to verify such data/information. Other (Describe):

2.10	<p>Data Management:</p> <p>All laboratory data acquired will be managed in accordance with Region 7 EPA SOP 2410.1.</p> <ul style="list-style-type: none"> Other (Describe): All laboratory data acquired will be managed according to procedures established by the START-contracted laboratory.
3.0 Assessment and Oversight:	
3.1	<p>Assessment and Response Actions:</p> <p> <input type="checkbox"/> Peer Review <input type="checkbox"/> Management Review Field Audit Lab Audit </p> <p>Assessment and response actions pertaining to analytical phases of the project are addressed in Region 7 EPA SOP 4231.2012</p> <p>Other (Describe):</p>
3.1A	<p>Corrective Action:</p> <ul style="list-style-type: none"> Corrective actions will be taken at the discretion of the EPA project manager, whenever there appear to be problems that could adversely affect data quality and/or resulting decisions affecting future response actions pertaining to the site. <p>Other (Describe):</p>
3.2	<p>Reports to Management:</p> <p> Audit Report <input type="checkbox"/> Data Validation Report Project Status Report None required </p> <p>A letter report describing the sampling techniques, locations, problems encountered (with resolutions to those problems), and interpretation of analytical results will be prepared by START and submitted to the EPA.</p> <p>Reports will be prepared in accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>.</p> <ul style="list-style-type: none"> Other (Describe): A letter report or e-mail summarizing the fieldwork will be prepared by the sampler and submitted to the EPA project manager.

4.0 Data Validation and Usability:	
4.1	<p>Data Review, Validation, and Verification Requirements:</p> <p>Identified in attached table.</p> <ul style="list-style-type: none"> Data review and verification will be performed in accordance with the <i>Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012)</i>. <p>Data review and verification will be performed by a qualified analyst and the laboratory's section manager as described in Region 7 EPA SOPs 2430.06 and 2430.12.</p> <ul style="list-style-type: none"> Other (Describe): The analytical data package from the START-contracted laboratory will be validated internally by the contracted laboratory in accordance with the laboratory's established SOPs. A START chemist will conduct an external verification and validation of the laboratory data package.
4.2	<p>Validation and Verification Methods:</p> <p>Identified in attached table.</p> <p>The data will be validated in accordance with Region 7 EPA SOPs 2430.06 and 2430.12.</p> <ul style="list-style-type: none"> Other (Describe): The data will be validated using methods consistent with a Stage 2B validation, as described in the EPA Contract Laboratory Program (CLP) <i>Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use</i> (EPA 2009). A Stage 2B validation includes verification and validation based on a completeness and compliance check of sample receipt conditions and sample-related and instrument-related QC results. The EPA Project Manager will be responsible for overall validation and final approval of the data, in accordance with the projected use of the results.
4.3	<p>Reconciliation with User Requirements:</p> <p>Identified in attached table</p> <ul style="list-style-type: none"> If data quality indicators do not meet the project's requirements as outlined in this QAPP, the data may be discarded and re-sampling or re-analysis of the subject samples may be required by the EPA site manager. <p>Other (Describe):</p>

Table 1: Sample Summary							
Site Name: West Lake Landfill				City: Bridgeton, MO			
START Project Manager: Colin Willits				Activity/ASR #: NA		Date: October, 2015	
No. of Samples	Matrix	Location	Purpose	Depth or other Description	Requested Analysis	Sampling Method	Analytical Method/SOP
10	Soil	OU-1, Area 1 and Area 2	Assess volume of RIM	NA	Isotopic Uranium, Isotopic Thorium, Gamma emitters (including Ra-226 by Bi-214/Pb-214 and Ra-226 by Ac-228)	Samples will be collected by EMSI in accordance with their approved workplan and QAPP	EML U-02 Modified EML Th-01 Modified LANL ER-130 Modified (or EML 01-R Modified)
3	Sediment	OU-1, Area 1 and Area 2	Assess volume of RIM	NA			

Notes:

EML U.S. Department of Energy (DOE) Environmental Measurements Laboratory (EML) Procedures Manual
 LANL Las Alamos National Laboratory

Table 2: Data Quality Objective Summary

Site Name: West Lake Landfill				City: <i>Bridgeton, MO</i>				
START Project Manager: <i>Colin Willits</i>				Activity/ASR #: NA			Date: <i>October, 2015</i>	
Analysis	Analytical Method	Data Quality Measurements					Sample Handling Procedures	Data Management Procedures
		Accuracy	Precision	Representativeness	Completeness	Comparability		
SOIL AND SEDIMENT								
<i>Isotopic Uranium, Isotopic Thorium, Gamma emitters (including Ra-226 by Bi-214/Pb-214 and Ra-226 by Ac-228)</i>	See Table 1	per analytical method	per analytical method	Biased/judgmental sampling based on professional judgment of the sampling team	100%; samples split soil cores	Standardized procedures for sample collection and analysis will be used	See Section 2.3 of QAPP	See Section 2.10 of QAPP form

Sampling Narrative

Introduction

Representatives of the United States Environmental Protection Agency (EPA) Region 7 will conduct split sampling of soil and sediment cores taken at the West Lake Landfill site in Bridgeton, MO.

The purpose of the sampling is to determine volume of contaminants OU-1, Area 1 and 2. The Quality Assurance Project Plan (QAPP) identifies the site-specific features and addresses elements of the sampling strategy and analytical methods proposed for this investigation.

Site Location

Bridgeton, MO.

Site Description

The West Lake Landfill Site (Site) is located in Bridgeton, Missouri. The U.S. Environmental Protection Agency (EPA) is the lead agency, and the Missouri Department of Natural Resources (MDNR) is the supporting state agency. The EPA ID Number is MOD079900932.

The Site was used agriculturally until a limestone quarrying and crushing operation began in 1939. The quarrying operation continued until 1988 and resulted in two quarry pits. Beginning in the early 1950s, portions of the quarried areas and adjacent areas were used for landfilling municipal refuse, industrial solid wastes, and construction/demolition debris. These operations were not subject to state permitting because they occurred prior to the formation of MDNR in 1974. Two landfill areas were radiologically contaminated in 1973 when they received soil mixed with leached barium sulfate residues.

The Site is on a parcel of approximately 200 acres. It consists of the recently active Bridgeton Sanitary Landfill and several old inactive areas with sanitary and demolition fill. The Site is divided into two operable units (OUs). OU 1 addresses two of the inactive landfill areas that are radiologically contaminated known as Area 1 and Area 2. The other landfill areas that are not impacted by radionuclide contaminants are addressed by OU 2.

Previous Investigations

Not applicable.

Sampling Strategy and Methodology

EPA will be provided an opportunity to collect split samples for performance of duplicate sample analyses or such other additional testing that EPA desires to conduct, subject to the availability of sufficient material from the interval(s) of interest. Priority will be given to obtaining sufficient sample volumes for the samples to be sent to the offsite laboratories for the additional characterization of Areas 1 and 2.

Quality Control Samples

The split samples to be obtained from EMSI are in addition to other quality control samples that will be collected by EMSI per their approved workplan and QAPP.

Analytical Methods

Samples will be analyzed by a START-contracted laboratory, according to the analytical methods listed in Table 1. Detection limits typically reported by those methods are adequate for this activity.